

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:**Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-003526**Date Inspected:** 09-Jul-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China

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|------------------------------------|-------------------------------|-----------|------------|----------------------------------|-------------------------------|----------------------|
| CWI Name: | Zhao Chen Sun and Hu Wei Qing | | | CWI Present: | Yes | No |
| Inspected CWI report: | Yes | No | N/A | Rod Oven in Use: | Yes | No N/A |
| Electrode to specification: | Yes | No | N/A | Weld Procedures Followed: | Yes | No N/A |
| Qualified Welders: | Yes | No | N/A | Verified Joint Fit-up: | Yes | No N/A |
| Approved Drawings: | Yes | No | N/A | Approved WPS: | Yes | No N/A |
| | | | | Delayed / Cancelled: | Yes | No N/A |
| Bridge No: | 34-0006 | | | Component: | OBG and SAS Tower Fabrication | |

Summary of Items Observed:

On this date, Caltrans Office of Structural Material (OSM) Quality Assurance (QA) Inspector Joselito Lizardo was present as requested to perform observations on the fabrication of Orthotropic Box Girder (OBG) and SAS Tower at Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China.

The QA Inspector has randomly observed the following activities on sub-assembly Bays mentioned below;

Bay 4: Tower Diaphragm

This QA Inspector randomly observed three ZPMC welders Li Zhao Qian ID #048810, Shi Yan Hao ID #053605 and Li Shi Qiang welder 053609 utilizing the FCAW Process in the 3G (Vertical Groove) Position with a 1.4mm diameter electrode, filler metal brand E71T-1, class Supercored 71H, semi automatic with ZPMC WPS WPS-B-T-2233-B-U3-F, to weld root and fill passes on groove (bent heavy plate) splice butt joint on Tower Diaphragm Flange Sub-Assembly WSD1-SA268 weld joint 4B, SSD1-SA-322 A/B weld joints 6A and 10A respectively. The QA Inspector randomly observed ZPMC CWI Zhao Chen Sun monitoring preheat and weld parameters.

Fillet weld repair was observed on 2-open rib stiffener to edge panel EP056-001-003~006 and EP042-001-004~007 by ZPMC welder Zhang Peng ID #049769 using THJ506Fe electrode. ZPMC CWI Wu Ming Cai noted monitoring said repair.

Bay 7: OBG - Floor Beam Sub Assembly

This QA observed ZPMC MT personnel Botin Rui and Cai Xin Xin perform Magnetic Particle Testing on fillet

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weld between stiffener to web plate and CJP weld on flange to web plate of floor beam FB015-008, FB010-009, FB011-001 and FB011-006. This QA perform 10% MT on floor beam FB015-008 but was not able to perform the rest due to lack of time. All floor beams MT'd were noted to have notches at the flanges without properly blending. Floor beam FB015-008 has 5 notches without proper blending, FB010-009 has 4, FB011-001 has 3, and FB011-006 has 6. This QA talked to ABF QA Inspector Kevin Dye concerning these notches and said ZPMC will fix these notches by blending to an acceptable depth to width ratio(See photo below). It was noted that rust and scale have been removed by ZPMC workers on weld areas prior MT testing. Electromagnetic Yoke was used with alternating current (AC) as power source. The detection media used was dry red ferromagnetic particles and applied with powder blower while the magnetizing force is on and in addition, magnetizing force is applied in perpendicular direction (180 degree apart). This QA also observed ZPMC's conduct of MT on these welds deemed acceptable.

This QA also observed ZPMC/NDT perform MT on fillet and CJP on stiffener ends (200mm long)to web plate of the following without notification to QA; CSD4-PP020, CSD4-PP028, CSD4-PP026, CSD5-PP021, CSD5-PP027, CSD6-PP019, CSD6-PP024, CSD6-PP023, CSD6-PP025, CSD5-PP019,M CSD5-PP025, CASD4-PP022, CSD5-PP023 and CSD7-PP024.

SMAW(2F/3F) fillet welding on 8.0mm thick plate end cap to 300mm x 300mm hollow steel diagonal brace for various floor beams sub-assembly FB006-036-003, FB006-037-001, FB006-037-003, FB006-035-001 and FB006-039-001. This QA observed ZPMC welders Yang Gencheng ID #066418 and Hu Yacheng ID #049339 doing the task using TL-508 electrode.

Bay 8: Tower Diaphragm

This QA Inspector randomly observed ZPMC welder Chen Chao Nian ID #048688 utilizing the FCAW Process in the 3G (Vertical Groove) Position with a 1.4mm diameter electrode, filler metal brand E71T-1, class Supercored 71H, semi automatic with ZPMC WPS WPS-B-T-2233-B-U3-F, to weld fill pass on groove (bent heavy plate) splice butt joint on Tower Diaphragm Flange Sub-Assembly NSD1-SA334 weld joint 10A. The QA Inspector randomly observed ZPMC CWI Lvliqing monitoring weld parameters.

Tack welding/fit-up of fillet weld connection between tower diaphragm plate to diaphragm flange ESD1-SA309-1 this QA observed. Gap measured all around was 4.5mm maximum and THJ506Fe-1 electrode used following procedure WPS-B-T-4122-4 by ZPMC welder Fan Dian Yi ID #051324.

Heat straightening was observed on tower diaphragm flange SSD1-SA270 weld joints 4A/B, 6A/B,10A/B, and 12A/B due to welding distortion. Natural gas was used with thermal heat input of less than 650 degree C and with the aid of 50-Ton hydraulic Ram following procedure HSR1(T)-2354.

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Summary of Conversations:

No significant conversation occurred today.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Ady Velasco, (858) 344-8746, who represents the Office of Structural Materials for your project.

Inspected By: Lizardo, Joselito

Quality Assurance Inspector

Reviewed By: Cochran, Jim

QA Reviewer